



EPA Region 5 Records Ctr.

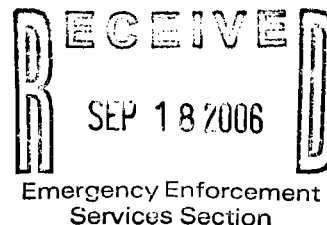


302564

300 West Edwards Street
Suite 200
Springfield, IL 62704-1907
Tel: (217) 525-7050
Fax: (217) 525-7053

September 14, 2006

Mr. Doyle Wilson
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P O Box 19276
Springfield, IL 62794-9276



Subject: Construction Report

Dear Mr. Wilson:

Enclosed please find five (5) copies of the Construction Report for SECOR International Inc. for your review. If you have any questions or comments, please contact me at (217) 525-7050.

Sincerely,

PATRICK ENGINEERING INC.

J. Stephen Van Hook, P.G.
Senior Project Manager

cc: Mr. Rosaro Delrosario – US EPA Region V
Kenneth Smith – SECOR
Scott Moyer – United Technologies Corp
Tom Lupo – Seyfarth Shaw LLP
Craig Simonsen – Seyfarth Shaw LLP

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CONSTRUCTION REPORT

Prepared For

SECOR INTERNATIONAL INC.
SPRINGFIELD, ILLINOIS

Submitted To



State of Illinois
ENVIRONMENTAL PROTECTION AGENCY
Douglas P. Scott, Director

Prepared By

PATRICK
ENGINEERING INC.

SEPTEMBER 2006

EXECUTIVE SUMMARY

The SECOR International Inc. (SECOR) has completed construction at the Interstate Pollution Control Site in Rockford, Illinois. Patrick Engineering Inc. (Patrick) has prepared this report documenting the construction quality assurance performed and certified by Patrick. The required testing and surveillance conducted and presented in this report is in accordance with the requirements of the SECOR Construction Quality Assurance Plan.

INTRODUCTION

Patrick was hired by SECOR to perform Construction Quality Assurance (CQA) services, for the construction of an engineered barrier at the Interstate Pollution Control Site in Rockford, Illinois. Patrick activities consisted of overseeing the installation of the Flexible Membrane Liner (FML), testing the compaction of the drainage layer and the compaction of the granular base layer. The CQA was performed in general accordance with the Construction Quality Assurance Plan dated June 1, 2006, as modified by the Engineer and Barrier Installation Construction Specifications dated September 12, 2006. The modification effecting Patrick's CQA pertained to the compaction requirements of the granular base layer and the drainage layer.

SCOPE OF WORK

Certification. The installation of the FML and compaction of the drainage layer and granular base layer was performed under the CQA supervision of Patrick. A statement by the CQA officer is included in Appendix A. A detailed description of the construction and certification testing methods for the work certified by Patrick is included in the following sections of the report.

Documentation of Construction Methods. The Construction Quality Assurance Officer (CQAO) or designated representative was on-site during construction activities to monitor and document the construction sequences. Daily summary reports were prepared to document the construction progress, describe equipment and procedures used in the work, and summarize the results of any tests that may have been performed. Copies of the daily summary reports are included in Appendix B.

Material Testing. The materials used to construct the facility were tested in the field. The results of the testing are summarized in the applicable sections of this report.

FLEXIBLE MEMBRANE LINER

Method of Construction. A 40-mil HDPE was used for the FML, which was placed over the subgrade. The panels were deployed onto the subgrade with the orientation as shown in Figure 1. Rolls of the geomembrane were deployed with the use of a rubber tire tractor with forks to hold the spreader bar. An ATV and workers were used to position the panels to the proper location and overlap. The rolls were pulled tight to remove wrinkles and sandbags were used to secure the panel until seaming took place.

The seam was prepared by adjusting the panels for proper overlap and pulling the panels to remove folds and wrinkles. Dust or dirt on the seam area was removed with use of rags. The self-propelled fusion welder was then used to weld the seams.

Extrusions welds were performed to properly patch around monitoring wells, punctured areas along panels, and for any repairs that were necessary to prohibit leakage from any portion along the surface area.

Non-Destructive Testing. The entire length of each seam was nondestructively tested by the air-pressure method. A Patrick CQAO continuously monitored the testing operations. The record of each non-destructive test is included in Appendix C.

The air-pressure test consists of pressurizing the enclosed airspace between the double seam to approximately 30 psi for a period of five minutes. A loss of pressure less than three psi resulted in a passing test. No leaks were detected while testing the welded seams.

Upon completion of the extrusion weld a vacuum box test were performed. The vacuum box test consisted of a vacuum held over the test area for a time period of five to ten psi. A passing test results when no bubbles appear in the vacuum box after a test period of approximately fifteen seconds. No leaks were detected.

Patrick was onsite during all fusion welding. Patrick observed all extrusion welds except those performed on July 22, 2006. Per the SECOR project manager, Patrick was not required to be onsite during the remaining extrusion welds performed. However, Patrick observed sufficient non-destructive testing to meet the requirements of the specification.

Detective Testing. Samples of the welds were obtained at random locations selected by SECOR. A 2-foot section of seam was removed from the selected locations. Coupons were then cut from either end of the sections for field tests. The results of the field-testing performed are presented in Appendix D.

One test failed, but a second coupon was cut immediately adjacent to the failed one and the test passed. It appeared that the first sample might not have been placed properly in the test device. Since the second test passed all field tests complied with the specifications.

DRAINAGE LAYER

Method of Construction. The Drainage Layer consisted of placing CA-16 over the FML. The CA-16 was placed in one 6-inch thick lift and compacted.

Field Density Test. Field density test was performed to document the *in-situ* density of the Drainage Layer. A nuclear density gauge was used to measure the field density of the Drainage Layer in field. The nuclear density tests were performed in accordance with ASTM D 2933.

Due to the steepness of the north slope, no CA-16 was placed in this area. The CA-16 was replaced with a medium sand. As a result, no density tests were performed in this area.

The test locations and results are shown in Appendix E. All of the tests recorded compaction greater or equal than specified 90%.

GRANULAR BASE LAYER

Method of Construction. The Granular Base Layer consisted of placing CA-6 over a geotextile, which was placed over the Drainage Layer. The CA-6 was placed in one 6-inch thick lift and compacted.

Field Density Test. Field density test was performed to document the *in-situ* density of the Granular Base Layer. A nuclear density gauge was used to measure the field density of the Granular Base Layer in field. The nuclear density tests were performed in accordance with ASTM D 2933.

The test locations and results are shown in Appendix E. All of the tests recorded compaction greater or equal than specified 90%.

CONCLUSIONS

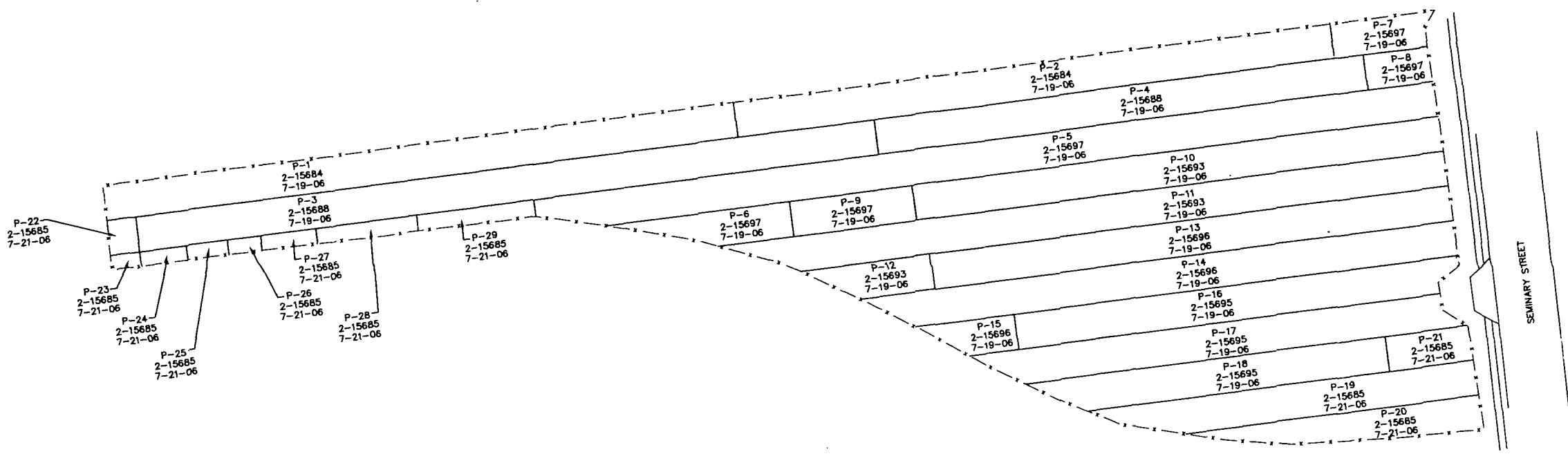
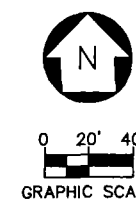
Based on the results of the testing and the field observations the following conclusions are apparent:

1. The installation of the FML and compaction of the drainage layer and granular base layer meet or exceed the minimum standard as required by the specifications.
2. All field-testing was conducted in accordance with the requirements of the specifications.

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FIGURE 1

FML PANEL LAYOUT



- LEGEND:
- x --- FENCE LINE
 - APPROXIMATE LIMITS OF FML PANEL
 - P-21 PANEL NUMBER
 - 2-15685 ROLL NUMBER
 - 7-21-06 INSTALLATION DATE

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY.

\\SPRINGFIELD\CAD\BASTE\20803\051\1\PANELS.DWG			PATRICK ENGINEERING INC. SPRINGFIELD, ILLINOIS	SECOR		SCALE: AS SHOWN		DATE: 9/14/06	
REV. No.	DATE	DESCRIPTION		RD/RA PROJECT 40 MIL HDPE PANEL LAYOUT ROCKFORD, ILLINOIS		DESIGNED BY	JWD	PROJECT No.: 20803.051	
						DRAWN BY	JWD	SHEET No.	
						CHECKED BY	MDB	1	
						APPROVED BY	JSV	1 OF 1 SHEETS	

APPENDIX A

CQA OFFICER'S STATEMENT

CQA OFFICER'S STATEMENT

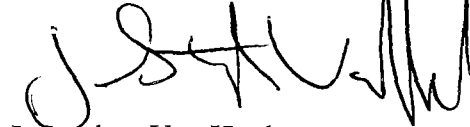
Patrick Engineering Inc. (Patrick) provided the Construction Quality Assurance for a portion of a engineer barrier described in this report at Interstate Pollution Control Site in Rockford, Illinois.

All quality assurance activities performed by Patrick personnel were under the direct supervision of the Construction Quality Assurance (CQA) Officer or his designated representatives, the CQA Officers-In-Absentia (CQA-OIA). The activities undertaken by Patrick are documented in the attached Construction Acceptance Report.

The CQA Officer designated four CQA-OIA who were onsite, as required, to oversee installation of portions of the engineer barrier. The CQA Officer was not present because, in his professional judgment, his presence was not required because the CQA-OIA had adequate knowledge and guidance of the requirements of the CQA Plan.

The CQA Officer at the time of the project construction activities was Steve VanHook. In the absence of the CQA Officer, Matt Breitenbach, Tom Winner, Jeff Deckard, and Marcin Gliszewski were onsite serving as CQA-OIA. The CQA Officer assumes full responsibility for all CQA related activities performed by Patrick at this site whether under his direct supervision or at the direction of the CQA-OIA.

PATRICK ENGINEERING INC



J. Stephen Van Hook.

CQA Officer

Registered Professional Geologist

Illinois No. 196-000247

Expires March 31, 2007

APPENDIX B

DAILY FIELD REPORTS

Project: SECOR - Remedial CDA - RockfordProject No: 20503.051Client: SECORDate: 07/19/06Weather Conditions: Mostly Cloudy to Overcast, Rain starts ~3:00, 80°-87°FTime Log: Onsite 9:40 AM to 3:30 PMTotal Hours: 12.5Vehicle: 122

Mileage: _____

Page 1 of 1

LV Springfield ~6:20 LF Onsite 9:40

Met Eric Roundy and John Harker from Secor. Eric will be Secor's onsite person. John is filling in for VanZwilt (on vacation) as PM.

- Installer is a subcontractor for GSE - geomembrane manufacturer.
- Installer had deployed two panels of 40mil HDPE beginning on the North side of the site, placing the along the long dimension of the site West to East.
- Installer crew comprised of (3) two-person wedge welding crews (1) deploying crew with 3 people pulling and positioning panels and 1 operating the JLT 5042 rubber tired tractor w/ fork or bucket
 - used fork to hold spreader bar for deployment
 - bucket to smooth subgrade or move sandbags
 - used personal ATV to pull FM
 - Sandbags to weigh edges of FML panels
- IEPA (Doyle Wilson) and one other from IEPA and USEPA onsite ~10-12.

Installer Activities:

- Deploy and wedge weld panels; cut FML to fit around Monitoring wells; Marked panels w/ Panel #, Roll #, Date of Installation; Marked seams w/ seamer initials, date/time of start, weld temp and speed.

Patrick Activities:

- Observed and documented above, sketched panel layout, noted turn-outs
- No testing completed today.

Rain, thunder, and lightning stopped work Unsafe Conditions.

Personnel MDR, TJW, SECOR, IEPA, USEPA,
Installer

Engineer/Technician

Matthew D. Buntline

Project: <u>Secor Remedial CQA</u>	Project No: <u>20603.051</u>
Client: <u>Secor</u>	Date: <u>7/20/06</u>
Weather Conditions: <u>Rainy, 75°</u>	
Time Log: <u>7:30 am - 5:30 pm (1/2 hr lunch)</u>	Total Hours: <u>9.5</u>
Vehicle: <u>162</u> Mileage: _____	Page <u>1</u> of <u>1</u>

* Called Eric Roundy @ 6:00 am to check site conditions. Eric said thunder & lightning and threatening to rain. Told him to call me back when he knew more information. Eric called back @ 7:30 am, told me to come to site for more testing.

* Left office @ 7:30 am, arrived on site @ 10:45 am. Spoke to Eric Roundy; Contractor left on account of weather ~10:30 am, may come back.

* Asked Eric if he could call contractor to let him know I was on-site. Eric said he did not have the contractor's number. I asked Eric again if he could reach the contractor, said he knew someone who had the number --> Contractor informed Eric Roundy he would not be coming back on site that day.

* Left site & returned to office ~ 5 pm, showed Jeff Dechard (Patrick) how to run tests for next day.

* Contractor Activities:
- Performed pressure tests on some seams while inspector was en route to site

* Inspector Activities:
- Recorded pressure test results upon on-site arrival

Personnel <u>Eric Roundy (Secor), TJW (Patrick)</u>	Engineer/Technician <u>Thomas J. Winner</u>
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Project: SECOR - Remedial CQA - Radford Project No: 202003.051
 Client: SECOR Date: 7-21-06
 Weather Conditions: Cloudy 10°-15°, + Rain 13:30-on
 Time Log: Onsite 8:30 to 1:00 Total Hours: _____
 Vehicle: 4x4 Mileage: _____ Page 1 of 2

Lu Springfield 5:00 Arr on site 8:30

Personnel

Contractor

(2) - Pressure tests

(1) - Corrosion testing + Material testing

(3) - Vibration

SECOR - Eric Pomeroy

JEAN - Wayne Williams

Contractor Activities

- Performed destructive test on 4 ARBs + (1) sample weld.
- Performed non-destructive testing on expansion welded welds.
- Installed final panels over site (Panels 26 thru 29)
- Contractor stopped work due to rain @ 12:30
- Installed patches over burnouts, DS locations + ground welds

Patrick Activities

- Observed + documented above. Sketched panel layout, noted burnouts + visual + documented + 10 notes performed. See test log

Personnel JWO, SECOR, IEPA, Installer

Engineer/Technician

[Signature]

PROJECT	RD/RA Project, Interstate Pollution Control, Rockford II			PROJECT #	20603.051-3
CLIENT	SECOR International			DATE	7/25/2006
WEATHER	Partly Cloudy, 95 ⁰ F, 0-5 MPH Winds from NW, humid				
TIME LOG	09:30 – 17:30			TOT. HRS.	8.0
VEHICLE	164	MILEAGE	198	PAGES	1

0930 – Departed Lisle.

1115 – Arrived to job site in Rockford. Met Eric Rounder .from Secor. Discussed work progress and scope for today's density testing. East side of the plot was already covered with 6" lift of CA-16, geotextile and 6"lift of CA-6.

Checked with Secor established density criteria. Per Secor every 6" lift of CA-16 and CA-6 needs to meet 90% of Proctor density.

1130 –Conducted density testing on CA-16 placed at the center of the plot. Conducted density testing on CA-6 placed at the east side of the plot and in the end of the day in the center of the plot.

Surveyed testing locations during each test using handheld GPS Garmin V to conform proper testing coverage.

1515 – Demobilized form the job site and traveled back to Lisle office. Unloaded supplies and secured Troxler in the closet.

1700- Completed daily field report. Density testing data are submitted in separate report.

Marcin Gliszewski

Geo-Environmental Engineer

PROJECT	RD/RA Project, Interstate Pollution Control, Rockford II			PROJECT #	20603.051-3
CLIENT	SECOR International			DATE	7/28/2006
WEATHER	Partly Cloudy, 95 ⁰ F, 0-5 MPH Winds from NNW, humid				
TIME LOG	09:30 – 17:30			TOT. HRS.	8.0
VEHICLE	164	MILEAGE	198	PAGES	1

0930 – Departed Lisle. Picked up supplies (flags, 5 gal buckets, spray paint).

1115 – Arrived to job site in Rockford. Met Eric Rounder and Ken Smith. Discussed work progress and scope for today's density testing.

1130 – Conducted density testing on CA-16 placed on the west end of the plot. Conducted density testing on CA-6 placed at the center of the plot and the west end of the plot. Surveyed testing locations during each test using handheld GPS Garmin V to conform proper testing coverage.

Collected samples of CA-16 and CA-6 for possible laboratory Proctor density testing.

1430 – On the north side of the plot steep slopes were covered with light brown medium sand. CA-16 stone material would slide down on HDPE line to the toe of the slope. Per SECOR there is no need to perform density testing on the slopes.

1500 – Demobilized from the job site and traveled to Lisle office. Unloaded supplies and secured Troxler in the closet.

1700- Completed daily field report. Density testing data are submitted in separate report.



Marcin Gliszewski

Geo-Environmental Engineer

APPENDIX C

NON-DESTRUCTIVE TEST RESULTS

NON-DESTRUCTIVE TESTING FORMPROJECT NAME SECOB REMEDIAL COAINSPECTOR Tara WhittenDATE 7/20/06PROJECT NUMBER 20603.051PAGE 1 OF 1

SEAM NUMBER	SEAM LENGTH	TESTER INITIAL	AIR PRESSURE					VBOX PASS/FAIL	LOCATION/COMMENTS SHEAR ppr
			PRESSURE			TIME DURATION	PASS/FAIL		
			START	END	+/-				
P12-P13	13'		30	30	φ	5 min	P		
P11/P-12			30	30	φ	5 min	P		
P-13/P-14			30	30	φ	5 min	P		
P15/P14			30	30	φ	5 min	P		
P15/P16	22'		30	30	φ	5 min	P		
P17/P15	12'		30	30	φ	5 min	P		
P14/P16			30	30	φ	5 min	P		
P17/16			30	29	-1	5 min	P		
P17/18			30	30	φ	5 min	P		
P17/14	5'		30	30	φ	5 min	P		
P17/P18	15'		30	30	φ	5 min	P		

NON-DESTRUCTIVE TESTING FORMPROJECT NAME SECOR Remedial CQA INSPECTOR JWD DATE 7-21-06PROJECT NUMBER 20603.051 PAGE 1 OF 4

SEAM NUMBER	SEAM LENGTH	TESTER INITIAL	AIR PRESSURE					VBOX PASS/FAIL	LOCATION/COMMENTS SHEAR ppi
			PRESSURE			TIME DURATION	PASS/FAIL		
			START	END	+ / -				
P4/P5	291		30	30	0	5 min.	Pass		
P4/P2	18		30	30	0	5 min.	Pass		
P4/P3	312		30	30	0	5 min.	Pass		
P8/P4	24		30	30	0	5 min.	Pass		
P7/P2	24		30	30	0	5 min.	Pass		
P7/P8	27		30	30	0	5 min.	Pass		
P7/P8	27		30	30	0	5 min.	Pass		
P5/P8	51		30	30	0	5 min.	Pass		
P3/P2	8		30	30	0	5 min.	Pass		
P1/P2	27		30	28	2	5 min.	Pass		
P2/P4	135		30	29	1	5 min.	Pass		
P1/P3	27		30	29	1	5 min.	Pass		
P1/P3	39		30	30	0	5 min.	Pass		
P3/P1	195		30	30	0	5 min.	Pass		
P3/P1	12		30	30	0	5 min.	Pass		

NON-DESTRUCTIVE TESTING FORMPROJECT NAME SECOR Remedial CQAINSPECTOR JWDDATE 7-21-06PROJECT NUMBER 20603.051PAGE 2 OF 4

SEAM NUMBER	SEAM LENGTH	TESTER INITIAL	AIR PRESSURE					VBOX PASS/FAIL	LOCATION/COMMENTS SHEAR ppi
			PRESSURE			TIME DURATION	PASS/FAIL		
			START	END	+ / -				
P23/P22	12		30	30	0	5 min.	Pass		
P3/P22	21		30	30	0	5 min.	Pass		
P23/P3	18		30	30	0	5 min.	Pass		
P23/P24	5		30	30	0	5 min.	Pass		
P24/P3	30		30	30	0	5 min.	Pass		
P24/P25	5		30	30	0	5 min.	Pass		
P25/P3	30		30	30	0	5 min.	Pass		
P25/P26	4		30	30	0	5 min.	Pass		
P26/P3	30		30	30	0	5 min.	Pass		
P26/P27	4		30	30	0	5 min.	Pass		
P27/P3	27		30	30	0	5 min.	Pass		
P28/P27	3		30	30	0	5 min.	Pass		
P28/P3	78		30	30	0	5 min.	Pass		
P28/P29	4		30	30	0	5 min.	Pass		
P29/P30	27		30	30	0	5 min.	Pass		

NON-DESTRUCTIVE TESTING FORMPROJECT NAME SECOR Remedial CQAINSPECTOR JWDDATE 7-21-06PROJECT NUMBER 20603.051PAGE 3 OF 4

SEAM NUMBER	SEAM LENGTH	TESTER INITIAL	AIR PRESSURE					VBOX PASS/FAIL	LOCATION/COMMENTS SHEAR ppi
			PRESSURE			TIME DURATION	PASS/FAIL		
			START	END	+ / -				
P3/P5	198		30	30	0	5 min.	Pass		
P6/P5	33		30	30	0	5 min.	Pass		
P6/P9	15		30	30	0	5 min.	Pass		
P9/P5	138		30	30	0	5 min.	Pass		
P9/P10	21		30	30	0	5 min.	Pass		
P10/P5	90		30	30	0	5 min.	Pass		
P9/P11	84		30	30	0	5 min.	Pass		
P10/P11	90		30	30	0	5 min.	Pass		
P10/P11	9		30	30	0	5 min.	Pass		
P10/P11	252		30	30	0	5 min.	Pass		
P5/P10	216		30	30	0	5 min.	Pass		
P21/P17	18		30	30	0	5 min.	Pass		
P21/P18	21		30	30	0	5 min.	Pass		
P21/P19	39		30	30	0	5 min.	Pass		
P20/P19	30		30	30	0	5 min.	Pass		



NON-DESTRUCTIVE TESTING FORM

PROJECT NAME SECOR Remedial CQA

INSPECTOR JWD

DATE 7-21-06

PROJECT NUMBER 20603.051

PAGE 4 OF 4

[illegible]

APPENDIX D

DESTRUCTIVE TEST RESULTS



DESTRUCTIVE TEST LOG

PROJECT NAME SECOR Remedial CQA INSPECTOR JWD DATE 7-21-06

PROJECT NUMBER 20603.051 PAGE 1 OF 1

MATERIAL TYPE HDPE THICKNESS 40 mil MIN. PEEL 65 ppi (fusion) MIN. SHEAR 81 ppi
52 ppi (extrusion)

[illegible]

APPENDIX E

NUCLEAR DENSITY SUMMARY

NUCLEAR DENSITY TEST DATA



Project: RD/RA Project, Interstate Pollution Control, Rockford, IL

Job No: 20603.051-300

Client: SECOR International Inc.

Date Tested: 07/25/06

Inspector: Marcin Gliszewski

Page: 1 of

Density Standard: 2543 Moisture Standard: 654

Meter No.: 23611

Test No.	Elev.	Lift Thick.	Location	
1		6" 1st	GPS 095	CA-16
2		6" 1st	GPS 096	CA-16
3		6"	097	CA-16
4		6"	098	CA-16
5		6"	099	CA-16
6		6"	100	CA-16
7		6"	101	CA-06
8		6"	102	CA-06
9		6"	103	CA-06
10		6"	104	CA-06

TEST DATA										
Test No.	1	2	3	4	5	6	7	8	9	10
Soil No.	CA-16	CA-16	CA-16	CA-16	CA-16	CA-16	CA-16	CA-16	CA-16	CA-16
Probe Depth, in.	4	4	4	4	4	4	4	4	4	4
Time Interval, min.	1	1	1	1	1	1	1	1	1	1
Aver. Density Count	6348	3993	4071	4554	4296	4485	2861	2796	2877	2903
Aver. Moisture Count	48	58	53	50	53	49	91	107	89	97
Density Ratio		1.570	1.601	1.791	1.689	1.764	1.125	1.099	1.131	1.142
Moisture Ratio		0.089	0.081	0.076	0.081	0.075	0.139	0.164	0.136	0.143
Wet Density, pcf	104.6	109.0	108.0	102.1	105.2	102.9	126.4	127.5	126.1	125.6
Weight of Water, pcf		3.7	3.2	2.9	3.2	2.8	6.8	8.3	6.6	7.4
Dry Density, pcf	101.8	105.3	104.8	99.2	102.0	100.1	119.6	119.3	119.5	118.3
Moisture Content, %	2.7	3.5	3.1	3.0	3.2	2.8	5.7	7.0	5.5%	6.2
Control Density, pcf	97.8	97.8	97.8	97.8	97.8	97.8	129.5	129.5	129.5	129.5
Opt. Moisture, %										
% Compaction	104.1%	107.7	107.2	101.4	104.2	102.3	92.4	92.1	92.3	91.3
Results	P	P	P	P	P	P	P	P	P	P
P: Test Passed F: Test Failed R: Retest of Failed Area										

NUCLEAR DENSITY TEST DATA

PATRICK
ENGINEERING INC.

Project: RD/RA Project, Interstate Pollution Control, Rockford, IL

Job No: 20603.051-300

Client: SECOR International Inc.

Date Tested: 7/25/06

Inspector: Marcin Gliszewski

Page: 2 of 2

Density Standard: 2543 Moisture Standard: 654

Meter No. 2364

Test No.	Elev.	Lift Thick.	Location
11		6"	105 CA-06
12		6"	106 CA-06
13		6"	107 CA-06
14		6"	108 CA-06
15		6"	109 CA-06
16		6"	110 CA-06
17		6"	111 CA-06

TEST DATA

Test No.	11	12	13	14	15	16	17			
Soil No.	CA-6	CA-6	CA-6	CA-6	CA-6	CA-6	CA-6			
Probe Depth, in.	4	4	4	4	4	4	4			
Time Interval, min.	1	1	1	1	1	1	1			
Aver. Density Count		2717	2693	2736	2706	2719	2787			
Aver. Moisture Count		96	83	93	89	90	76			
Density Ratio		1.068	1.059	1.076	1.064	1.069	1.096			
Moisture Ratio		0.147	0.127	0.142	0.136	0.138	0.116			
Wet Density, pcf	127.0	129.1	129.6	128.8	129.3	129.1	127.9			
Weight of Water, pcf	6.9	7.3	6.0	7.0	6.6	6.7	5.4			
Dry Density, pcf	120.1	121.8	123.6	121.8	122.7	122.4	122.5			
Moisture Content, %	5.7	6.0	4.9	5.7	5.4	5.5	4.4			
Control Density, pcf	129.5	129.5	129.5	129.5	129.5	129.5	129.5			
Opt. Moisture, %										
% Compaction	92.7	94.1	95.4	94.0	94.8	94.5	94.6			
Results	P	P	P	P	P	P	P			

P: Test Passed F: Test Failed R: Retest of Failed Area

NUCLEAR DENSITY TEST DATA

PATRICK
ENGINEERING INC.

Project: RD/RA Project, Interstate Pollution Control, Rockford, IL

Job No: 20603.051-300

Client: SECOR International Inc.

Date Tested: 07/28/06

Inspector: Marcin Gliszewski

Page: 1 of 2

Density Standard: 2543 Moisture Standard: 654

Meter No.: 23611

Test No.	Elev.	Lift Thick.	Location
1		6"	GPS - 113 WELL SOUTH GPS-112
2		6"	114 WELL WEST GPS-115
3		6"	GPS-116
4		6"	GPS-117
5		6"	GPS-118
6		6"	GPS-119
7		6"	- 120
8		6"	- 121
9		6"	122
10		6"	123

~~11 6" 124~~

TEST DATA											
Test No.	1	2	3	4	5	6	7	8	9	10	11
Soil No.	CA-16	CA-16	CA-6	CA-6	CA-6	CA-6	CA-6	CA-6	CA-6	CA-16	CA-16
Probe Depth, in.	4	4	4	4	4	4	4	4	4	4	4
Time Interval, min.	1	1	1	1	1	1	1	1	1	1	1
Aver. Density Count	4538	4540	2335	2198	2173	2593	2593	2483	2492	4675	4757
Aver. Moisture Count	49	45	105	93	91	96	97	92	83	49	49
Density Ratio	1.785	1.785	0.918	0.884	0.855	1.020	1.020	0.976	0.980	1.838	1.871
Moisture Ratio	0.075	0.069	0.161	0.142	0.139	0.147	0.148	0.141	0.127	0.095	0.075
Wet Density, pcf	102.3	102.3	137.0	140.20	140.8	131.5	135	133.8	133.7	100.7	99.8
Weight of Water, pcf	2.8	2.5	8.1	7.0	6.8	7.3	7.4	6.9	6.0	2.8	2.8
Dry Density, pcf	99.4	99.8	128.9	133.2	134.0	124.3	124.2	126.9	127.6	97.9	96.9
Moisture Content, %	2.9	2.5	6.3	5.2	5.1	5.8	5.9	5.4	4.7	2.9	2.9
Control Density, pcf	97.8	97.8	129.5	129.5	129.5	129.5	129.5	129.5	129.5	97.8	97.8
Opt. Moisture, %	N/A	N/A	8.6	8.6	8.6	8.6	8.6	8.6	8.6	N/A	N/A
% Compaction	101.7	102.1	99.5	102.9	103.5	96	95.9	98	98.6	100.1	99.1
Results	P	P	P	P	P	P	P	P	P	P	P

P: Test Passed F: Test Failed R: Retest of Failed Area

NUCLEAR DENSITY TEST DATA

PATRICK
ENGINEERING INC.

Project: RD/RA Project, Interstate Pollution Control, Rockford, IL

Job No: 20603.051-300

Client: SECOR International Inc.

Date Tested: 07/28/06

Inspector: Marcin Gliszewski

Page: 2 of 2

Density Standard: 2543 Moisture Standard: 654

Meter No. 23611

Test No.	Elev.	Lift Thick.	Location
11		6"	GPS-124
12		6"	-125
13		6"	-126
14		6"	-127
15		6"	-128
16		6"	-129
17		6"	-130
18		6"	-131
19		6"	-132
20		6"	-133

TEST DATA

Test No.	11	12	13	14	15	16	17	18	19	20
Soil No.	CA-16	CA-6	CA-6	CA-6	CA-6	CA-6	CA-6	CA-6	CA-6	CA-6
Probe Depth, in.	4	4	4	4	4	4	4	4	4	4
Time Interval, min.	1	1	1	1	1	1	1	1	1	1
Aver. Density Count	4757	2301	2278	2389	2217	2231	2268	2154	2084	2457
Aver. Moisture Count	49	99	104	85	99	97	89	107	106	98
Density Ratio	1.871	0.905	0.896	0.939	0.872	0.877	0.892	0.847	0.820	0.966
Moisture Ratio	0.075	0.151	0.159	0.145	0.151	0.148	0.136	0.164	0.162	0.150
Wet Density, pcf	99.8	137.8	138.3	135.8	139.7	139.4	138.6	141.2	142.9	134.3
Weight of Water, pcf	2.8	7.5	8.0	7.2	7.5	7.4	6.6	8.3	8.2	7.4
Dry Density, pcf	96.9	130.2	130.2	128.7	132.2	132.0	132.0	132.9	134.7	126.9
Moisture Content, %	2.9	5.8	6.2	5.6	5.7	5.6	5.0	6.2	6.1	5.9
Control Density, pcf	97.8	129.5	129.5	129.5	129.5	129.5	129.5	129.5	129.5	129.5
Opt. Moisture, %	N/A	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
% Compaction	99.1	100.6	100.6	99.4	102.0	101.9	101.9	102.6	104.0	98
Results	P	P	P	P	P	P	P	P	P	P

P: Test Passed F: Test Failed R: Retest of Failed Area